

upper and lower faces. The skeleton framework 61 has two ends and a center that is parallel to the axle 14. The skeleton framework 61 ends are rotatably attached to the axle 14 by a pair of bushings 106. The position of skeleton framework 61 on the axle 14 is maintained by a pair of cylindrical spaces 107. Each spacer 107 is positioned on the axle 14 between the elevatable support bushings 106 and a pair of outer axle bearings 108. Those skilled in the art will recognize that bearings of different types may be used in place of the bushings 106 and spacers 107. The axle 14 is rotatably mounted to the chassis 9 by the bearings 108 and a bearing 122. Each bearing 108 is fixably attached to and located on the axle 14 adjacent the two end portions 21 and 55. The bearings 108 are fixably attached and located in the center of axle 14 and is supported by stationary frame 19. The axle 14 is driven by an electric motor 94. Those skilled in the art will recognize that other types of motor may be used to implement aspects of the invention. The axle 14 has two end portions 21 and 55 that cover[s] the first embodiment 10. The motor 94 is attached to the axle 14 by a keyed sprocket and an endless roller chain 104. The turning motion of the axle 14 is transferred to a pair of keyed sprockets 12 that are mounted on the ends of the axle 14.

In the Claims

Please cancel claims 1-11, without prejudice.

Please add new claims 12-35 as follows.

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--12. A loading apparatus for mounting a movable frame on a stationary frame, wherein there is an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the

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second end portion of the elevatable support being mounted to the stationary frame for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support; wherein a lift action control mechanism mounted on the stationary frame cooperates with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis; characterized in that:

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a drive is co-axially arranged with the elevatable support about the elevatable support axis; the drive is adapted for connection with the moveable frame, so that the drive may slidably move the moveable frame onto and off of the elevatable support and the stationary frame, while the lift action control mechanism permits the angle of the elevatable support to adapt about the elevatable support axis so that the elevatable support slidingly engages the movable frame.

13. The apparatus of claim 12, wherein movement of the movable frame powered by the drive adapts the angle of the elevatable support so that the elevatable support slidingly engages the movable frame.

14. The apparatus of claim 13, wherein the drive is a sprocket powered by an axle, and the elevatable support is rotatably attached to the axle.

15. The apparatus of claim 13, wherein there is an interconnection between the elevatable support and the moveable frame, during sliding movement of the movable frame, so that the movable frame adapts the angle of the elevatable support through the interconnection.

16. The apparatus of claim 12, wherein the drive is a sprocket powered by an axle, and the elevatable support is rotatably attached to the axle.

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17. The apparatus of any one of claims 12 through 16, wherein the lift action control mechanism is powered to control the movement of first end portion of the elevatable support member towards a raised position and to control movement of the first end portion of the elevatable support towards a lowered position.

18. A loading apparatus comprising:
a) a stationary frame having a drive;
b) a movable frame having a flexible connector releasably connectable to the drive to move the movable frame onto the stationary frame; and
c) a locking system mounted on the stationary frame to hold the flexible connector in releasable engagement with the drive, the locking system having a
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movable shoe arm positionable to keep the flexible connector in engagement with a first portion of the drive, the shoe arm being movable by the movement of the movable frame,

when driven by the drive, to displace the moveable shoe arm so that the flexible connector may be released from the drive.

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19. The loading apparatus of claim 18, wherein the locking system
further comprises a sensing plate locking arm ²⁸ adapted to contact the movable shoe arm to lock the movable shoe arm into position to keep the flexible connector in engagement with the drive, wherein the sensing plate locking arm is movable by the movement of the movable frame, when driven by the drive, to displace the sensing plate locking arm to release the movable shoe arm so that the movable shoe arm may be displaced by the movable frame to release the flexible connector from the drive.

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20. The loading apparatus of claim 19 wherein the sensing plate locking arm is operably connected to a tab ³⁰ shaped to prevent the flexible connector from engaging a second portion of the drive, in cooperation with the movable shoe arm being positioned to keep the flexible connector in engagement with the first portion of the drive.

21. The loading apparatus of any one of claims 18 through 20, wherein the flexible connector is a chain and the drive comprises a sprocket that engages the chain.

22. The loading apparatus of any one of claims 18 through 20, wherein the stationary frame is mounted on a vehicle.

23. The loading apparatus of any one of 18 through 20, wherein:

the flexible connector is a chain;

the drive comprises a sprocket that engages the chain; and

the stationary frame is mounted on a vehicle.

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24. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the second end portion of the elevatable support being mounted to the stationary frame, for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;

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b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and

c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame.

*member
member
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25. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

- a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the second end portion of the elevatable support being mounted to the stationary frame for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;
- b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and
- c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame;
- d) wherein the flexible connector is a chain and the drive comprises a sprocket that engages the chain.

26. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

- a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the second end portion of the elevatable support being mounted to the stationary frame for

pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;

b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and

c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame;

d) wherein movement of the movable frame powered by the drive adapts the angle of the elevatable support so that the elevatable support slidingly engages the movable frame.

27. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the second end portion of the elevatable support being mounted to the stationary frame for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;

b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and

c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame;

d) wherein:

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the flexible connector is a chain and the drive comprises a sprocket that engages the chain; and

movement of the movable frame powered by the drive adapts the angle of the elevatable support so that the elevatable support slidingly engages the movable frame.

28. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the second end portion of the elevatable support being mounted to the stationary frame for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;

b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and

c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame;

d) wherein:

movement of the movable frame powered by the drive adapts the angle of the elevatable support so that the elevatable support slidingly engages the movable frame; and

there is an interconnection between the elevatable support and the moveable frame, during sliding movement of the movable frame, so that the movable frame adapts the angle of the elevatable support through the interconnection.

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29. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the second end portion of the elevatable support being mounted to the stationary frame for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;

b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and

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c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame;

d) wherein:

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wherein the flexible connector is a chain and the drive comprises a sprocket that engages the chain; and

movement of the movable frame powered by the drive adapts the angle of the elevatable support so that the elevatable support slidingly engages the movable frame; and

there is an interconnection between the elevatable support and the moveable frame, during sliding movement of the movable frame, so that the movable frame adapts the angle of the elevatable support through the interconnection.

30. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion,

the second end portion of the elevatable support being mounted to the stationary frame for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;

b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and

c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame;

d) wherein the lift action control mechanism is powered to control the movement of first end portion of the elevatable support member towards a raised position and to control movement of the first end portion of the elevatable support towards a lowered position.

31. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the second end portion of the elevatable support being mounted to the stationary frame

for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;

b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and

c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame;

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d) wherein

the flexible connector is a chain and the drive comprises a sprocket that engages the chain; and

the lift action control mechanism is powered to control the movement of first end portion of the elevatable support member towards a raised position and to control movement of the first end portion of the elevatable support towards a lowered position.

32. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion,

the second end portion of the elevatable support being mounted to the stationary frame for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;

b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and

c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame;

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d) wherein
movement of the movable frame powered by the drive adapts the angle of the elevatable support so that the elevatable support slidingly engages the movable frame; and

the lift action control mechanism is powered to control the movement of first end portion of the elevatable support member towards a raised position and to control movement of the first end portion of the elevatable support towards a lowered position.

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33. The ~~loading~~ apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

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a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the second end portion of the elevatable support being mounted to the stationary frame for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;

b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and,

c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame;

d) wherein:

wherein the flexible connector is a chain and the drive comprises a sprocket that engages the chain;

movement of the movable frame powered by the drive adapts the angle of the elevatable support so that the elevatable support slidingly engages the movable frame; and

the lift action control mechanism is powered to control the movement of first end portion of the elevatable support member towards a raised position

D₄ and to control movement of the first end portion of the elevatable support towards a lowered position.

34. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the second end portion of the elevatable support being mounted to the stationary frame for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;

C₂ b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and

c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the elevatable support to adapt so that the elevatable support slidingly engages the movable frame;

d) wherein:

movement of the movable frame powered by the drive adapts the angle of the elevatable support so that the elevatable support slidingly engages the movable frame;

there is an interconnection between the elevatable support and the moveable frame, during sliding movement of the movable frame, so that the movable frame adapts the angle of the elevatable support through the interconnection; and

the lift action control mechanism is powered to control the movement of first end portion of the elevatable support member towards a raised position and to control movement of the first end portion of the elevatable support towards a lowered position.

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35. The loading apparatus of any one of claims 18 through 20, for mounting the movable frame on the stationary frame comprising:

- a) an elevatable support member mounted on the stationary frame, the elevatable support member having a first end portion and a second end portion, the second end portion of the elevatable support being mounted to the stationary frame for pivotal movement with respect to the stationary frame about an elevatable support axis to provide an adjustable angle of the elevatable support;
- b) a drive cooperating with the stationary frame and adapted for connection with the movable frame, so that the drive may slidably move the movable frame onto and off of the elevatable support and the stationary frame; and,
- c) a lift action control mechanism mounted on the stationary frame cooperating with the elevatable support member to modulate movement of the elevatable support about the elevatable support axis while permitting the angle of the